

Martagon Lilies x West Coast American Lilies: Thirty Years of Interspecific Hybrids

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I think I can give facts, which constitute evidence that martagon crosses with West Coast American lilies are possible. I am speaking of garden crosses without the aid of embryo rescue or laboratory procedures. I know these are crosses that some persons still believe are impossible.

Years ago, I had some lilies in my garden – among them martagons – but I had no source for American species lilies or hybrids of American lilies at that time. It was in 1972, that I saw American lilies at the “Floriade” in Amsterdam. I was fascinated. A few pollen grains somehow clung to my fingers. In the evening, back in my hotel room, I was not quite sure which pollen was from which American lily. As well as some ‘Robin’ and ‘Nightingale’ stems there were two other American stems which were very similar to ‘Robin’ and ‘Nightingale’.

At home again, the pollen was used on *L. martagon* ‘Album Superbum’ and also on a pink martagon. The stigmas were covered and labeled as usual. By 1974, the first leaves of the cross seedlings showed nothing special. However by 1978, it became exciting and fascinating to watch what was unfolding. The martagon x West Coast American lily seedlings had been planted with the martagons in a part of the garden, which had similar shade. Before long, differences could be seen. I informed Dr. Fischer and Mr. Beutnagel. Both these gentlemen were from Braunschweig and both were known authorities on lilies and particularly on martagons. Mr. Beutnagel has chosen to specialize in martagon species and martagon hybrids. Both men came to see the flowers of my crosses. The bloom terms of the flowers were like martagons although the triangular shape of the flower cross-section was more distinct. The colors were like martagons and the flower size of the hybrids showed little or no difference to the martagons. If someone perceived longer and more elegant pedicels, then he must have had a kind intention.

The differences of the hybrids to the martagon were:

1. The time of spring emergence was later;
2. The leaf surfaces were brighter;
3. The distribution of color was different e.g.
 - a. large spots which none of my martagons displayed at that time,
 - b. colored petal tips and
 - c. light margins that were characteristic of the hybrids.

Approximately at the same time, Mr. Beutnagel had crossed martagons with West Coast American hybrids and he had doubted his own “bookkeeping” just as I had with my own record keeping. Both his hybrids and my hybrids were often without pollen and the flowers were commonly deformed. These two signs are often found in even less-related interspecific lily crosses. Mr. Beutnagel felt strongly and gave the advice that we should carry on to try F2 crosses. I was without much desire or motivation because of the poor flower colors in the first generation. I could not imagine a worthwhile goal or aim for further breeding. I thought about it too long and did not act. In the meantime, the hybrids were open pollinated and yielded a copious amount of seed. Many of this second generation of seed pods showed characteristics very different from the characteristics of martagon seed pods. They were more rounded and longer. Often the seedpod was deformed and of only two sides instead of three. Even if the hybrids showed no differences in terms of color, flower shape and inflorescence to the martagon, the shape of the capsule would reveal the hybrid nature of the lily. When the capsules came again in the second season with the same form as I had observed in the first season, I talked of these hybrids to other lily enthusiasts. But before I give more details of the capsules, let me introduce a few of the hybrids.



Photo 01 is of *L. martagon* var. *hirsutum* x 'Robin'. It has flowers crowded on the lower part of the inflorescence, with remarkably long pedicels. The flowers are more out-facing.



Photo 02 is also of *L. martagon* var. *hirsutum* x 'Robin', (6-73) hybridized by Martschinke with seed sown in 1973. This one always had longer capsules and showed no remarkable differences to a martagon. It was used often for hybridization before it died out.



Photo 03 is of *L. martagon hirsutum* x 'Nightingale', (4-73) hybridized by Martschinke, from seed sown in 1973. It has large spots within white halos. The one pictured grows best of all those of the same cross. The triangular shape is well marked as the petals are less recurved.



Photo 04 is another *L. martagon hirsutum* x 'Nightingale' seedling; it reveals large spots and the petal margins are light-colored. The pedicel shows the influence of 'Nightingale' in regard to elegance and length.



Photo 05 shows a healthy, but less easily increasable hybrid of the same breeding i.e. *L. martagon hirsutum* x 'Nightingale'. I liked it very much because of the color distribution on the tips of the petals. Most unfortunately, it became infected with tulip breaking virus.



Photo 06 features a seedling from *L. martagon* 'Album Superbum' x 'Robin', (5-73) hybridized by Martschinke and sown in 1973. This hybrid selection has thick petals, similar to some hybrids grown by Mr. Beutnagel that were without pollen. A thin plate layer chromatography (HPTLC) could give an explanation as to whether the color comes from the martagon parentage side or not.

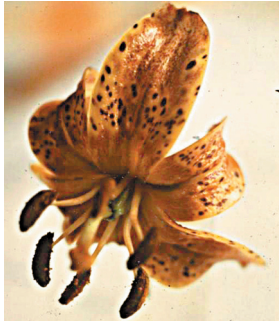
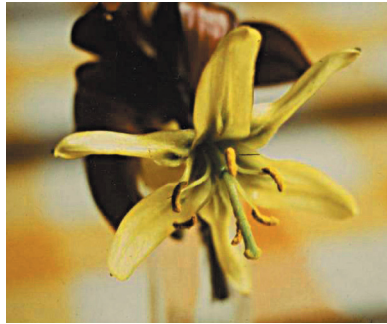


Photo 07a is of a single flower of a cross between a martagon hybrid x 'Miranda', hybridized by Mr. Beutnagel. Large spots characterize this seedling. The dominance of the martagon in color and shape is easily seen as it is with the other hybrids noted above. One would not call this one, elegant, I fear.



Photos 08 and 09 both depict flowers from the cross 'Del Norte' (light) x *L. martagon* var. *cattaniae* by Beutnagel. The deformed light flower has the color of the seed parent while the second hybrid follows the color of the dark, var. *cattaniae* pollen parent, but has the triangular form of the American lily. This latter, dark one set seed with 'Nightingale', which is about 1/10 dark red/black, 9/10 a middle shade of red/black.



Photo 10a



Photo 10b

For another comparison, I took photos of the capsules (see Photos 10a and 10b.) The capsules of the martagon, 'Marhan' and *L. tsingtauense* hybrids are short and wide and the seams of the pods are more or less at an angle such that every capsule has six edges or forms a hexagonal shape. Compared with this hexagonal shape, the West Coast American lilies, which as far as I have known them, have capsules that look more or less like a cylinder. In the first group, one finds lobe tops outside of the edges, the lobe tops protrude up to two mm. The overall impression is of a broad capsule. The tops of the American lily pods are mostly pointed. Compared to them, the capsules of the first group are rather flat on top. Each side of the American lily capsules reveals the depression where the side is divided into two seed carrying vacuoles inside. The martagons have less of a depression and more of a seam, such that the outside of the capsule may be seen as a gentle curve. I have to conclude that the *L. martagon* var. *cattaniae* capsules are more cylinder-like. In the martagon x American hybrids, one will find different combinations (see Photo 10a.)

I believe that there is a correlation between the lighter bulbs and the more cylindrical capsules. I got 3 bulblets from the cross, (*L. martagon* 'Album Superbum' x *L. hansonii*) X *L. parvum*. One was globular, the second was like a martagon and the third was short and loose. Unfortunately, they all died before flowering. One bulblet from an F2 cross. presented a bulblet that was lodged in the seed envelope endosperm. In another F2 cross, the cotyledons were often so short that the bulblets remained halfway stuck into the endosperm. A lot of these reached the flowering stage, but many had to be destroyed because of tulip breaking virus.

The selected seedlings of this F2 cross show the following features:

1. Large spots, (Photo 15)
2. Many spots, Photo 15)
3. The accentuation of the margins (Photo 15)
4. The color in the center of the flower is a different shade (Photo 16).

I still have difficulties in the culture of these hybrids and many have not reached flowering size or did so only to die shortly after first flowering. I will also make and grow reciprocal crosses, but I do not expect spectacular results. In fact, I will expect more:

1. Deformed flowers,
2. Flowers without pollen,
3. Irregular flower heads (and I would be astonished if they did not show high susceptibility to tulip breaking virus).

In the meantime, and as always, I continued to cross the martagon group with the West Coast American lilies. For that, I needed a lot of patience. But as the generations advanced through the decades, I did get more viable seeds and more stable intermediary plant types. Just to keep my self-confidence, I also continued to hybridize Asiatic lilies where seeds were more certain and progress was faster.

On my visit to Oregon in 2000, I took in the seminar on tissue culture offered by Judith Freeman. Then on my return, I attended a demonstration of the techniques at a Lily Group meeting. While I tried it years ago on my own, my cultures were plagued with infections. This time, I have been able to multiply a lot of martagon x American crosses that do not divide much, if any, on their own. These extra numbers should help with the progress of the interspecific breeding programs of me and Mr. Otto Beutnagel, who is participating in growing out the bulblets. Of course, many of the crosses have value as new forms and new color combinations of garden lilies. That was a goal all along.

(This article first appeared in the 2001 NALS Yearbook. All photos by Norgart Martschinke)



Photo 15



Photo 16